A Comparison of California Regional Nutrition Networks Using the 2005 BRFS

The Behavioral Risk Factor Survey (BRFS) is a large-scale telephone survey conducted as part of the Behavioral Risk Factor Surveillance System (BRFSS) by state health departments with technical and methodological assistance provided by the Centers for Disease Control (CDC). The surveillance system provides timely estimates of the adult general population's rate of risk related behaviors such as low consumption of fruits and vegetables or not exercising.

The statewide California Nutrition Network is composed of 11 Regional Nutrition Networks (RNNs). In order to provide feedback about the 2005 California BRFS findings to the California Nutrition Network's regions, California's 58 counties were aggregated into the 11 Regional Nutrition Network areas. In this way, comparative estimates can be made of:

- **Fruit and Vegetable Consumption**
  - Average Fruit and Vegetable Consumption
- **Physical Activity**
  - Percent Averaging 30 Minutes of Exercise 5 Days per Week
  - Percent Averaging 30 Minutes of Exercise 6 Days per Week
  - Percent Moderate Exercise at Least 5 Days at Least 30 Minutes per Day
  - Percent Vigorous Exercise at Least 3 Days at Least 20 Minutes per Day
  - Percent No Physical Activity
- **Body Mass Index**
  - Average Body Mass Index
  - Percent Overweight or Obese
  - Percent Obese
- **Food Insecurity**
  - Percent Food Insecure

The full list of variables used is presented in the appendix.

States conduct monthly telephone surveillance using a standardized questionnaire to determine the distribution of risk behaviors and health practices among adults. BRFS participants are reached using a random digit dialing technique that calls people at random using computer generated phone numbers. Responses are forwarded to CDC,

where the monthly data are put together for each state, returned with standard tabulations, and published at the year's end by each state.

The BRFS questionnaire is developed jointly by CDC's Behavioral Surveillance Branch and the states. There is a core set of questions administered by all states, but states may add additional questions. In 2005, "Body Mass Index", "Fruit and Vegetable Consumption", and "Physical Activity", were on the core survey. The Cancer Prevention and Nutrition Section (CPNS) proposed and funded the inclusion of questions on Food Insecurity to better inform our picture of California residents. Data derived from the questionnaire provide health departments, public health officials, and policymakers with necessary behavioral information. When combined with mortality and morbidity statistics, these data enable public health officials to establish policies and priorities and to initiate and assess health promotion strategies.

The graphics in this presentation display point estimates (indicated by the data value) surrounded by 95% confidence intervals (indicated by the width of the bars) to give a visual reference for seeing possible significant differences when comparing regions. When only small samples of adults have been taken from a region for the survey, there is less confidence in the 'true' value in the population and this will be reflected in wider bars that bracket the estimated value. Using a 95% confidence interval there is a 5% chance that the true value could be outside the width of the bars. Confidence intervals that do not overlap other regions can be considered significantly different. To emphasize rankings within the state, the displays by regions are sorted. An additional comparison with the state is included as a whole. The region with the best positive behavior has been placed on the top and the least achieving the behavior is at the bottom. For most questions, the highest percentage is the most desirable answer. The opposite is true for "No Leisure Time Physical Activity" and "Food Insecurity".

As a limitation, the existing sample weights do not take into account differences in age, sex, and ethnic composition at the regional level since the sample was designed to represent the state as a whole. To the extent that the individual characteristics in regions differ from the overall state averages there will be deviations from the true means and rates. These estimates should, however, provide an adequate guide for simple visual comparisons between regions. Since the BRFS sample size was not specifically designed to be large enough to detect the differences between Regional Nutrition Networks, in these data usually only the extremes of the eleven regions will have 'statistically significant' differences.

The 2005 total BRFS sample size was 6,098. The size of the samples for each region appears in parentheses and for the fruit and vegetable questions ranged from a high of 882 in the Bay Area to a low of 97 in the Sierra Cascades. Missing values on questions alter the sample size. Smaller sample sizes generally result in wider confidence intervals.

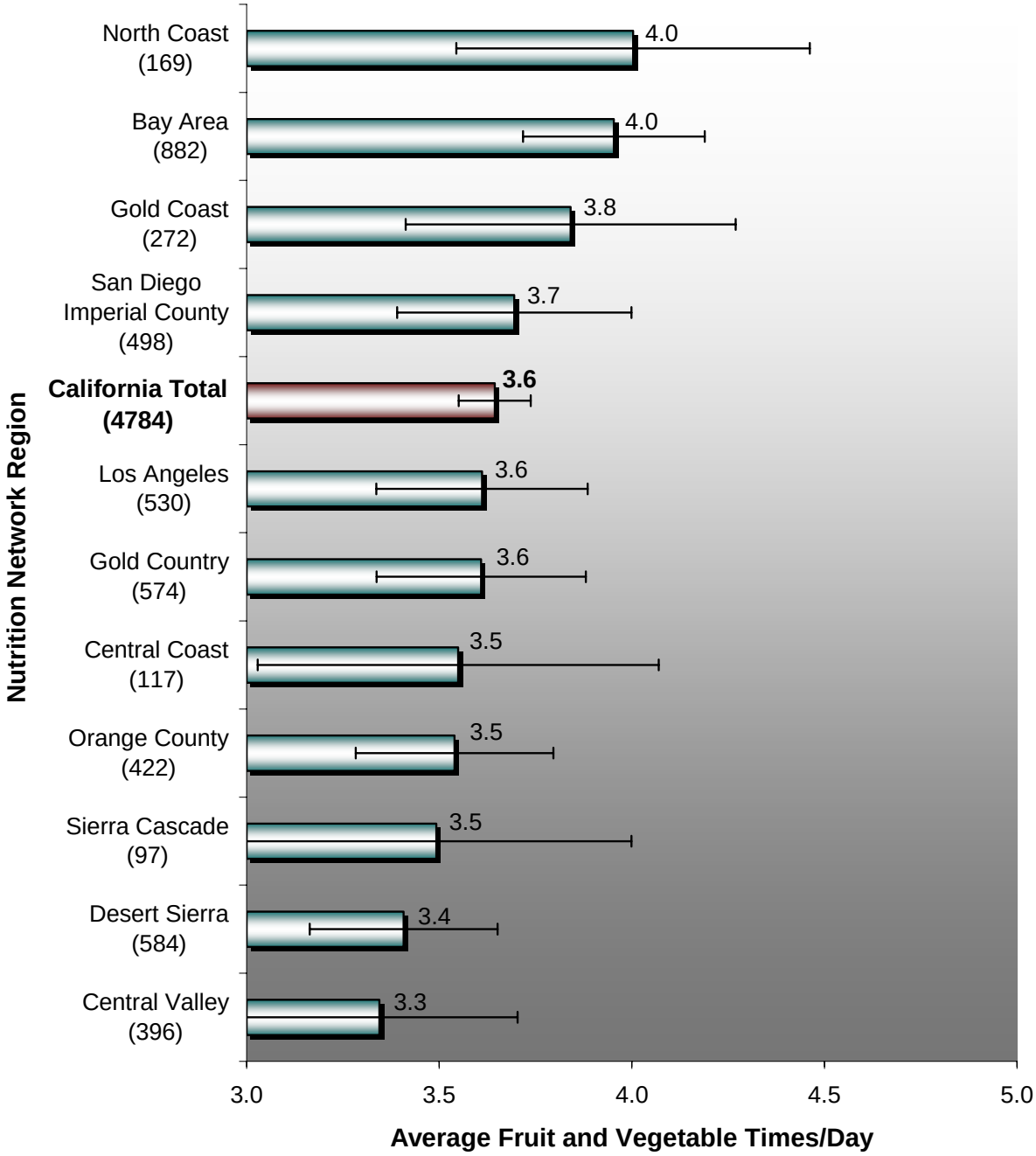
In general, the Bay Area Nutrition Network Region consumed more fruit and vegetables, was more physically active, had a lower body mass index, and had less food insecurity in contrast to the Central Valley which was usually on the opposite side of the spectrum.

Additional charts have been provided that divide each region by 200% of the Federal Poverty Level (FPL). The FPL is determined by both household income and family size. In 2005, a family of two was twice the FPL with an income of $25,660/yr, a family of three was twice the FPL with an income of $32,180/yr, and a family of four was twice the FPL with an income of $38,700/yr.

Average Fruit and Vegetable Consumption

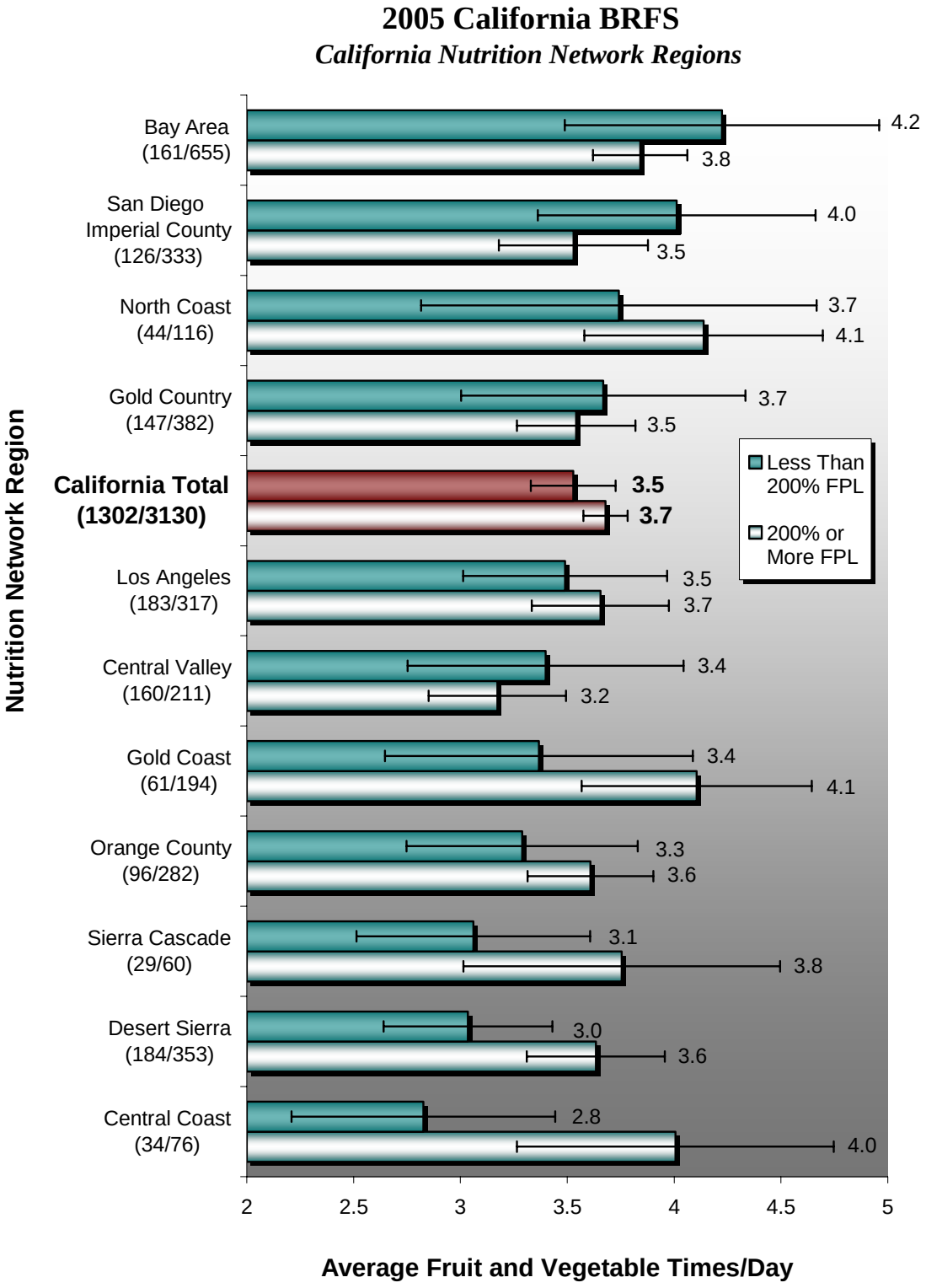
2005 California BRFS

California Nutrition Network Regions



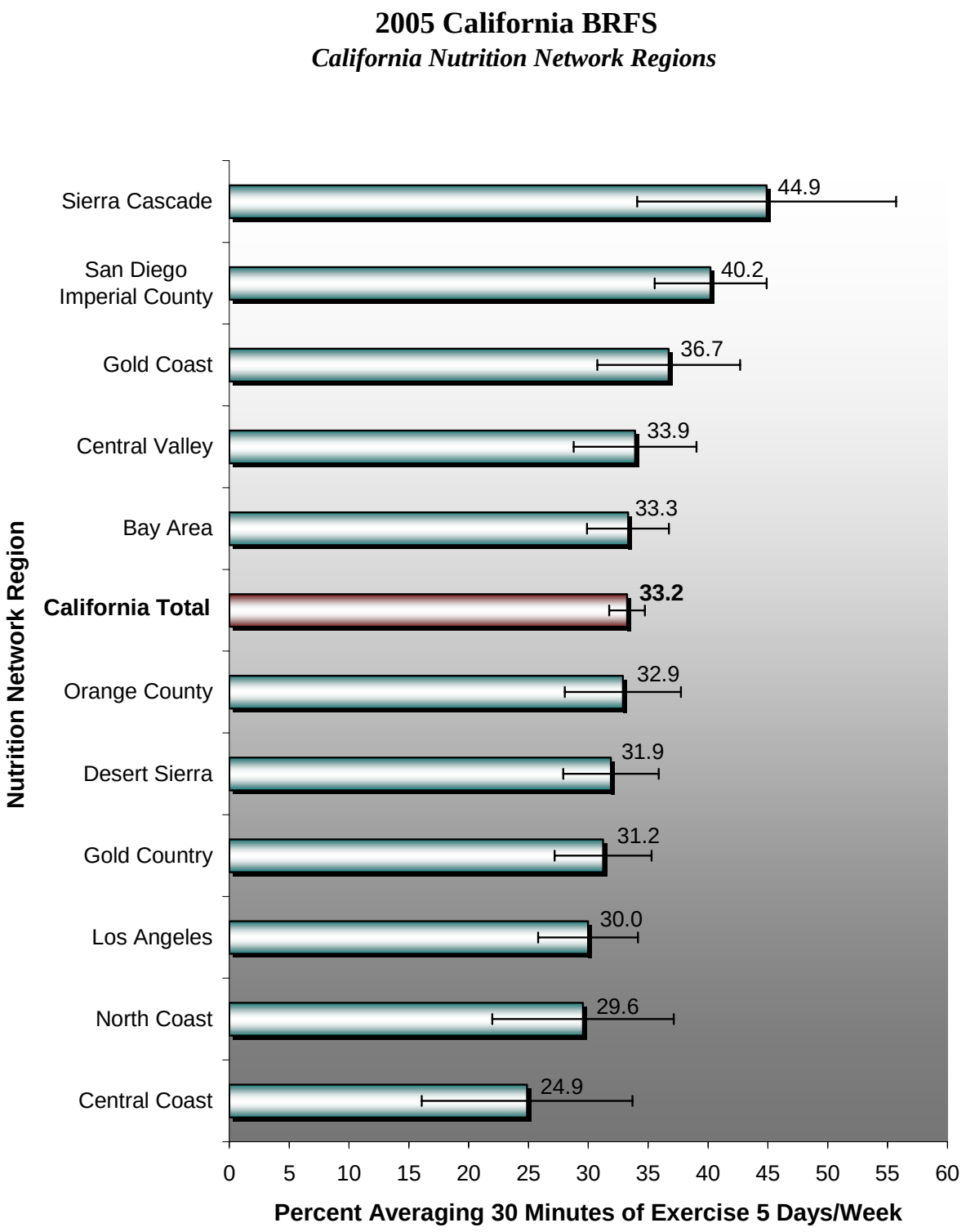
Average number of <u>times</u> fruit and vegetables are eaten per day.
The sample sizes for the regions are presented in parentheses.

Average Fruit and Vegetable Consumption

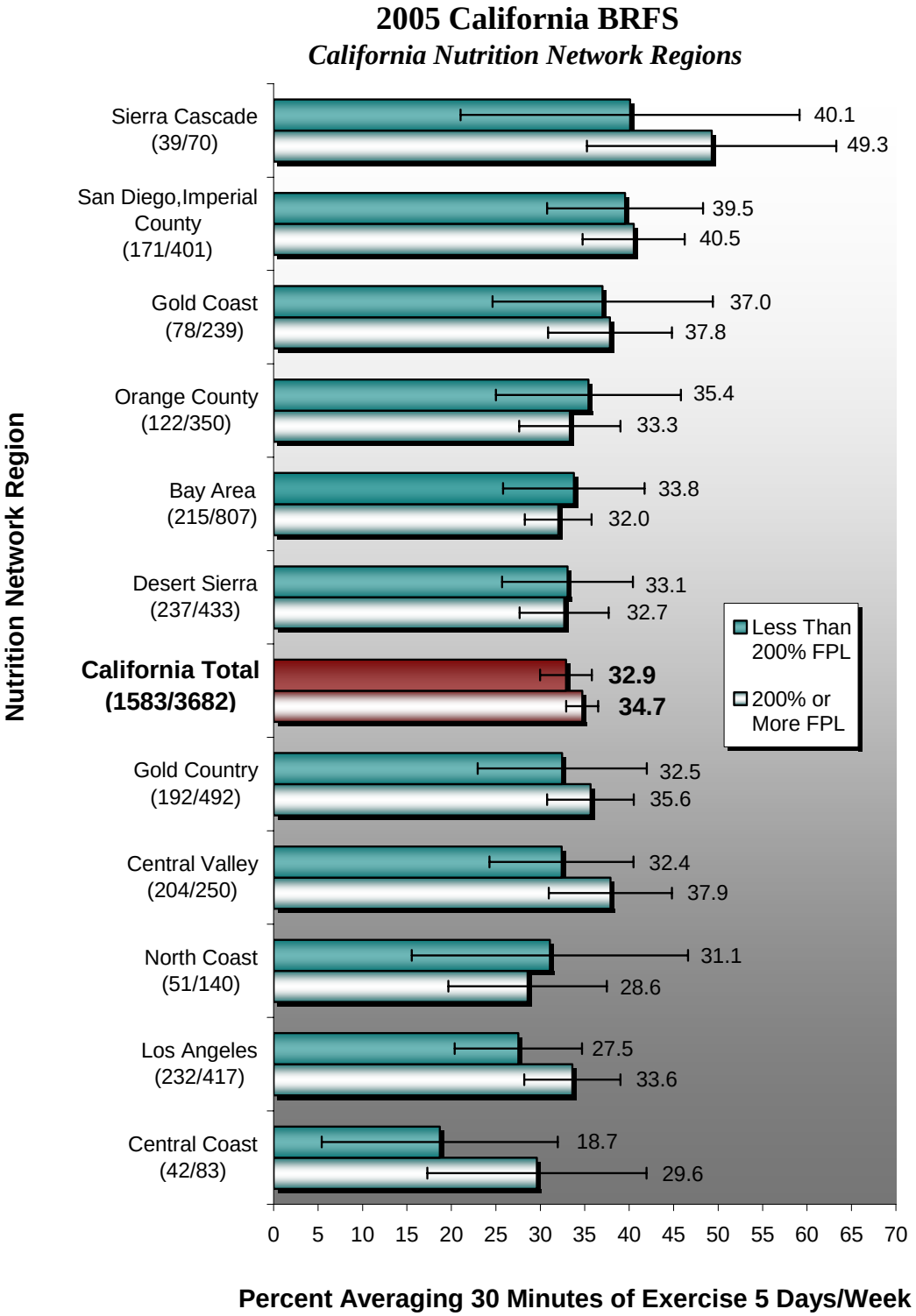


Average number of <u>times</u> fruit and vegetables are eaten per day.
The sample sizes for the regions are presented in parentheses.

Percent Averaging 30 Minutes of Exercise 5 Days per Week



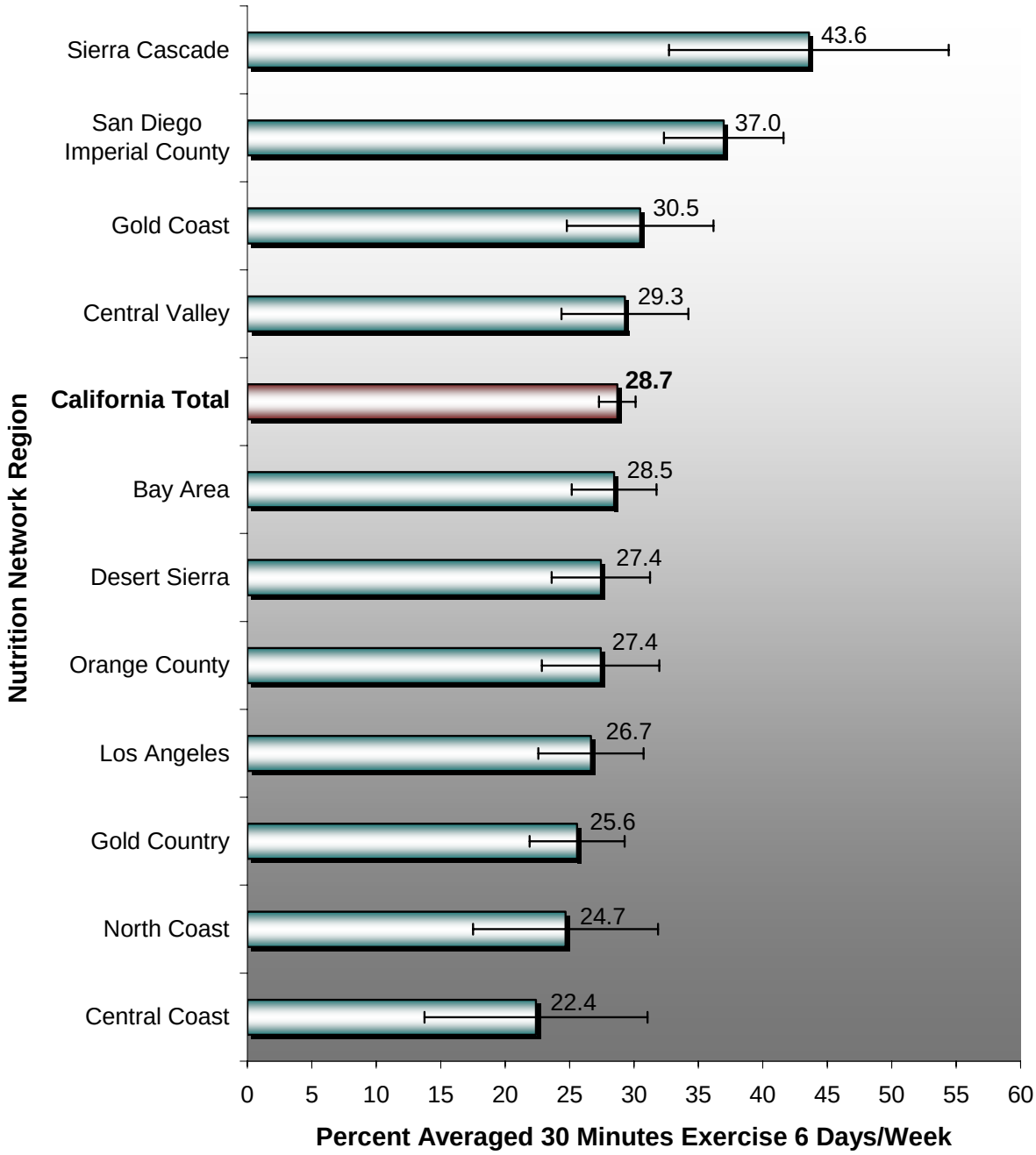
Percent Averaging 30 Minutes of Exercise 5 Days per Week



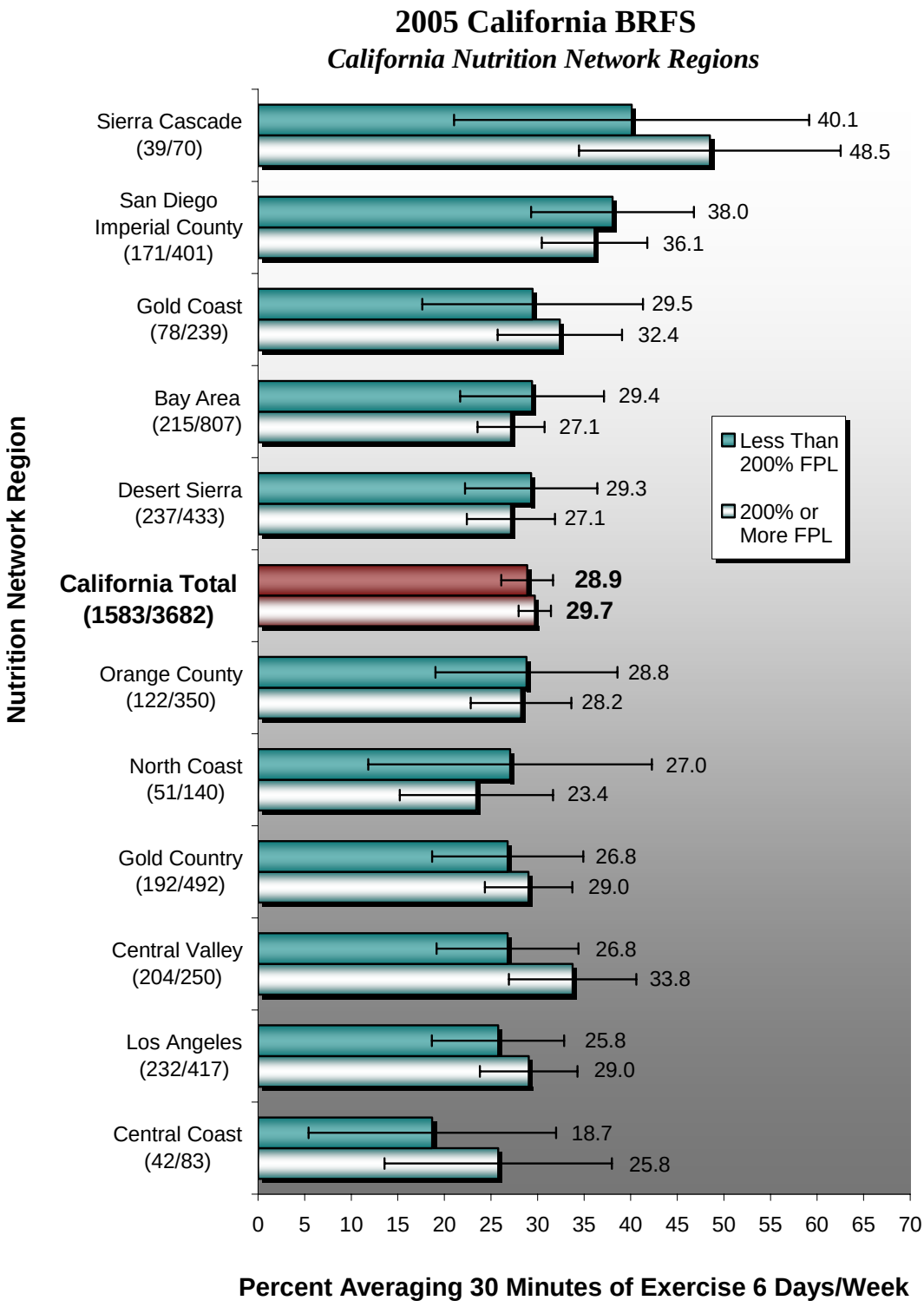
Percent Averaging 30 Minutes of Exercise 6 Days per Week

2005 California BRFS

California Nutrition Network Regions



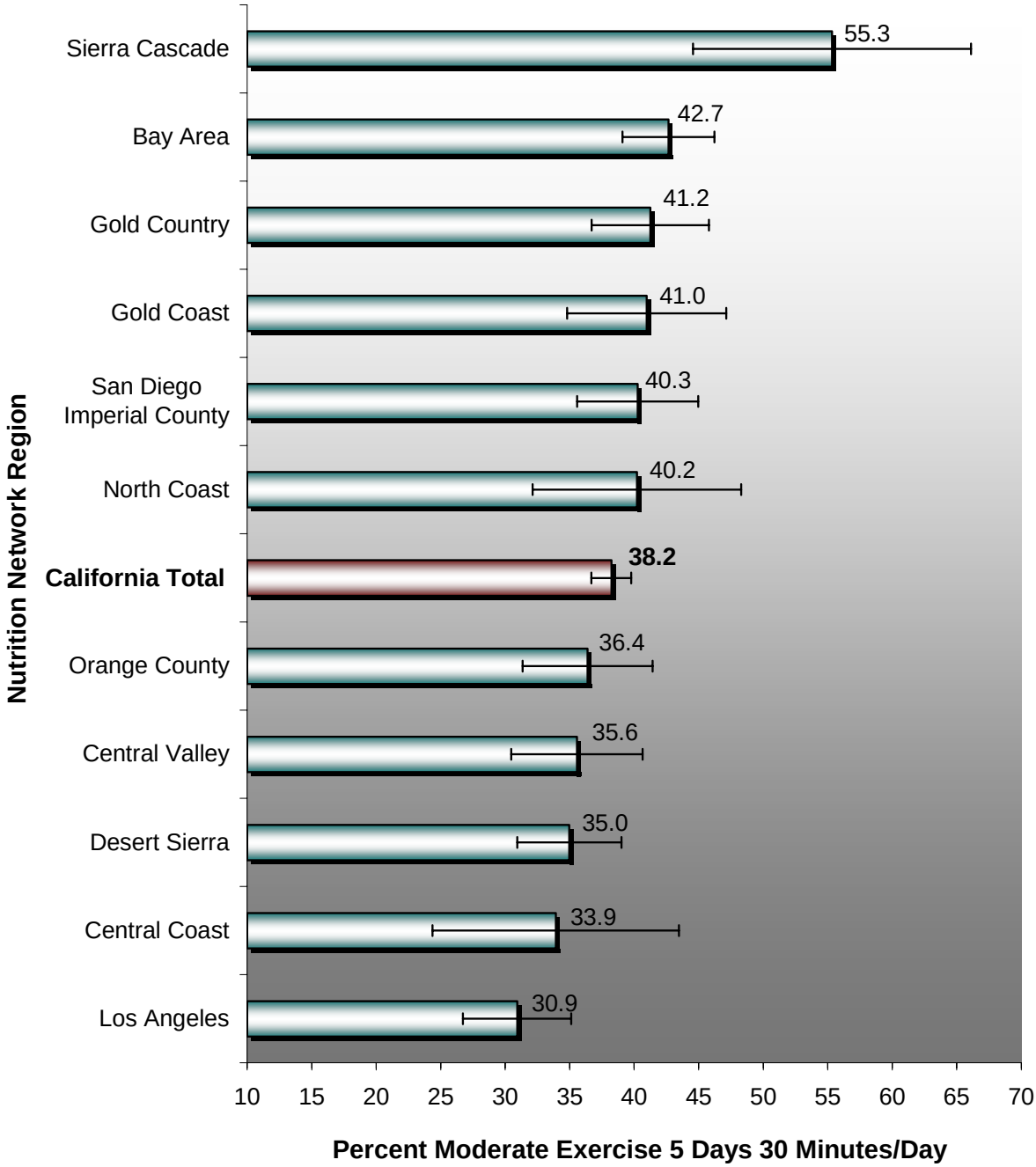
Percent Averaging 30 Minutes of Exercise 6 Days per Week



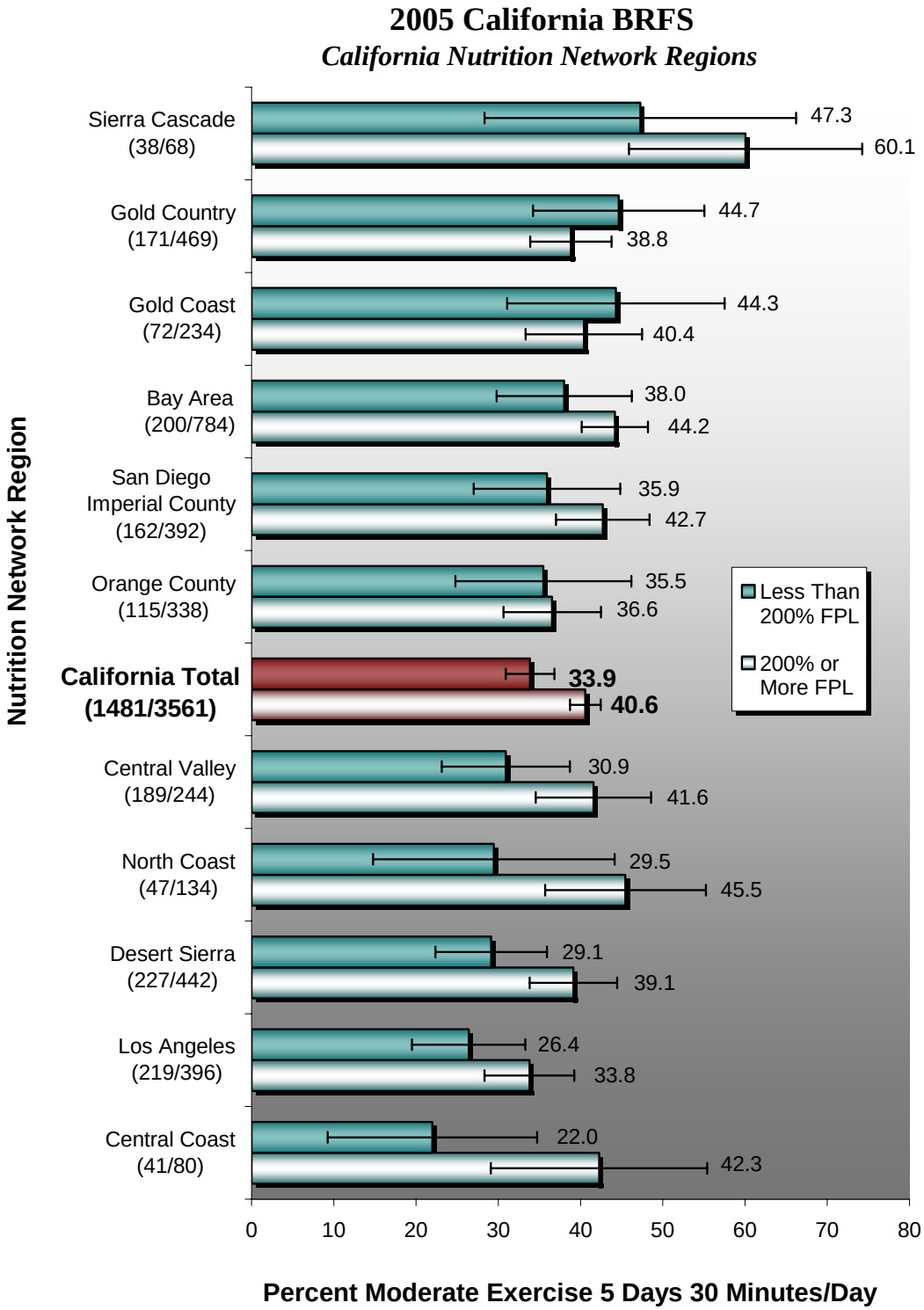
Percent Moderate Exercise at Least 5 Days at Least 30 Minutes per Day

2005 California BRFS

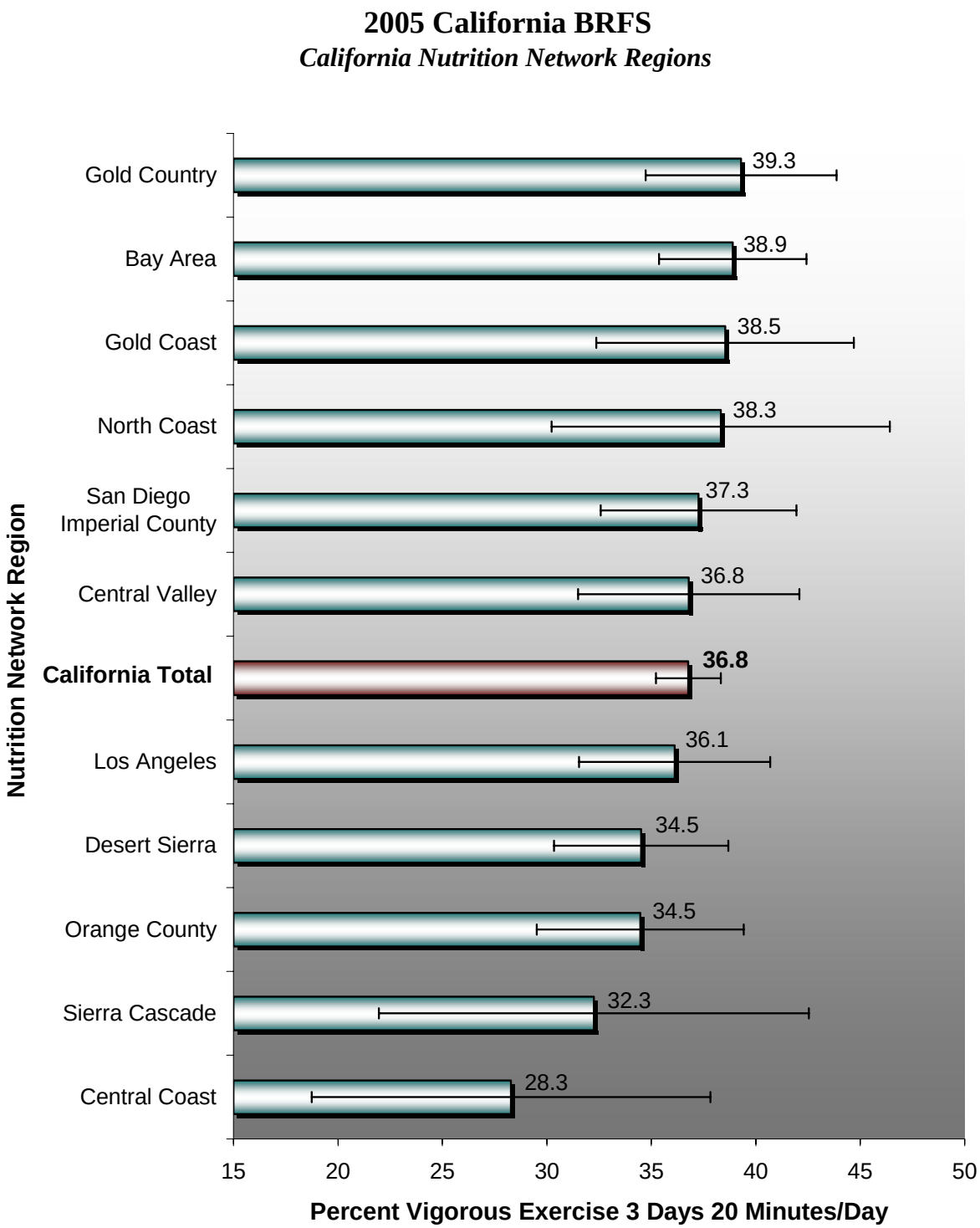
California Nutrition Network Regions



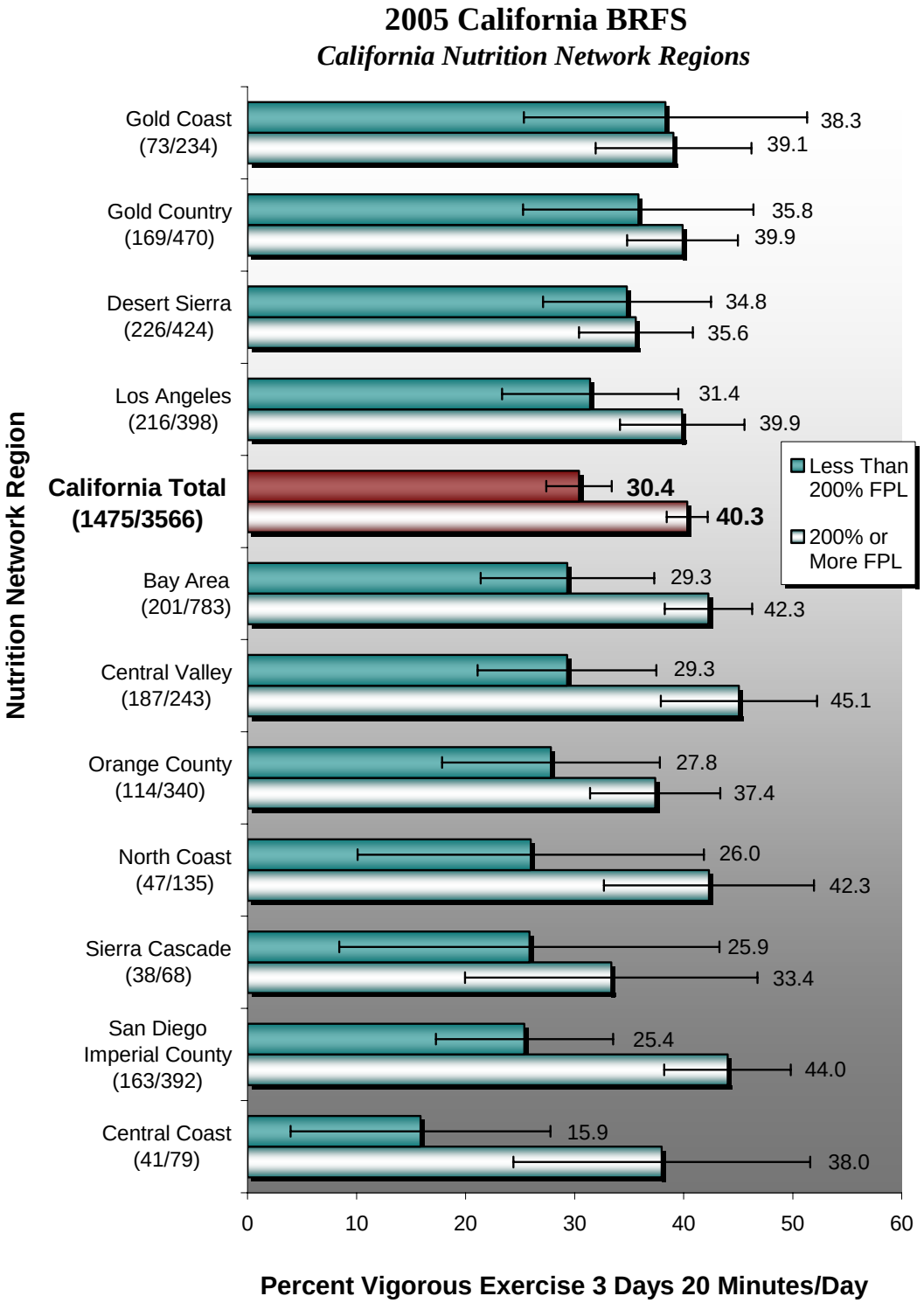
Percent Moderate Exercise at Least 5 Days at Least 30 Minutes per Day



Percent Vigorous Exercise at Least 3 days at Least 20 Minutes per Day



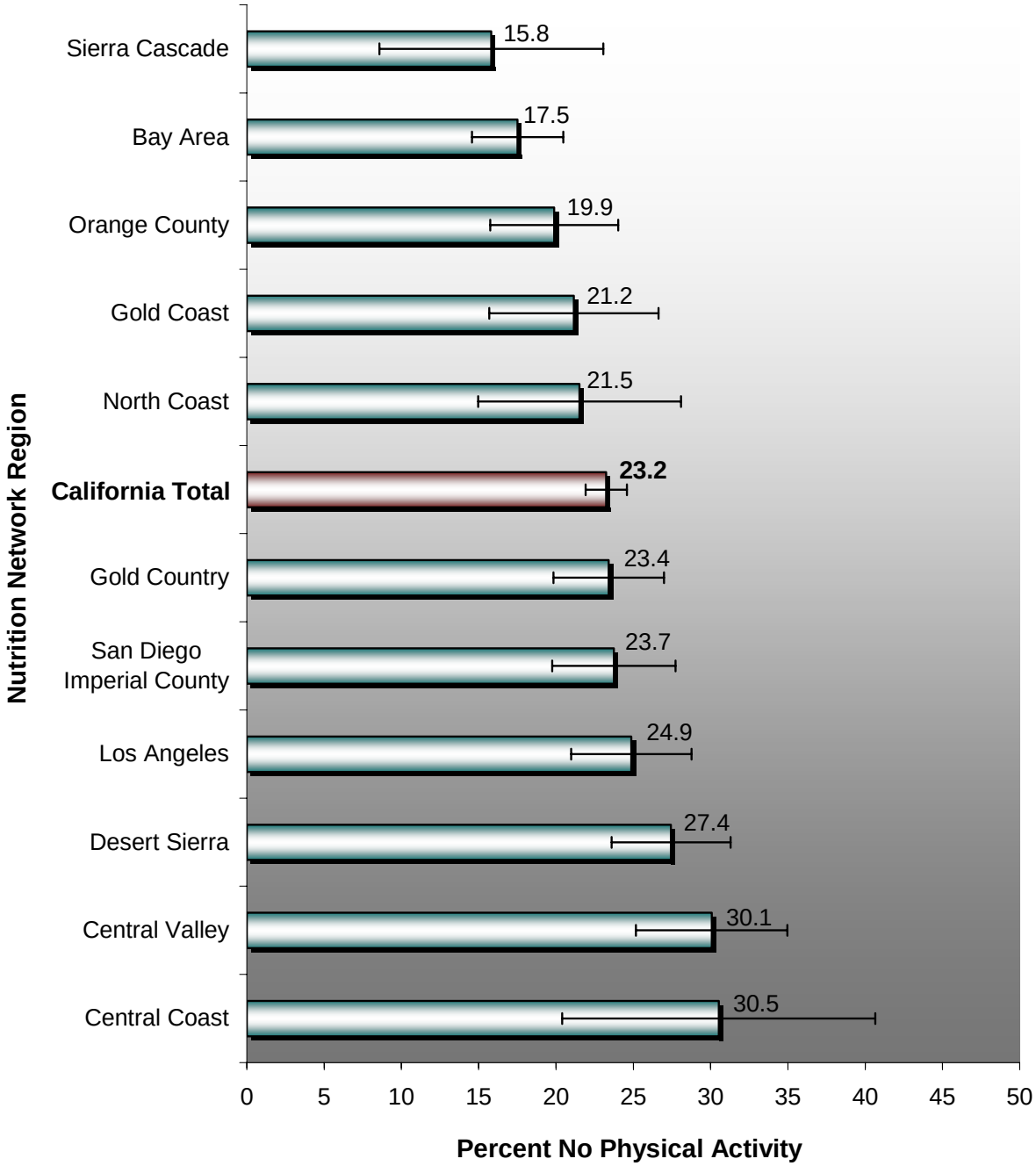
Percent Vigorous Exercise at Least 3 days at Least 20 Minutes per Day



Percent No Physical Activity*

2005 California BRFS

California Nutrition Network Regions

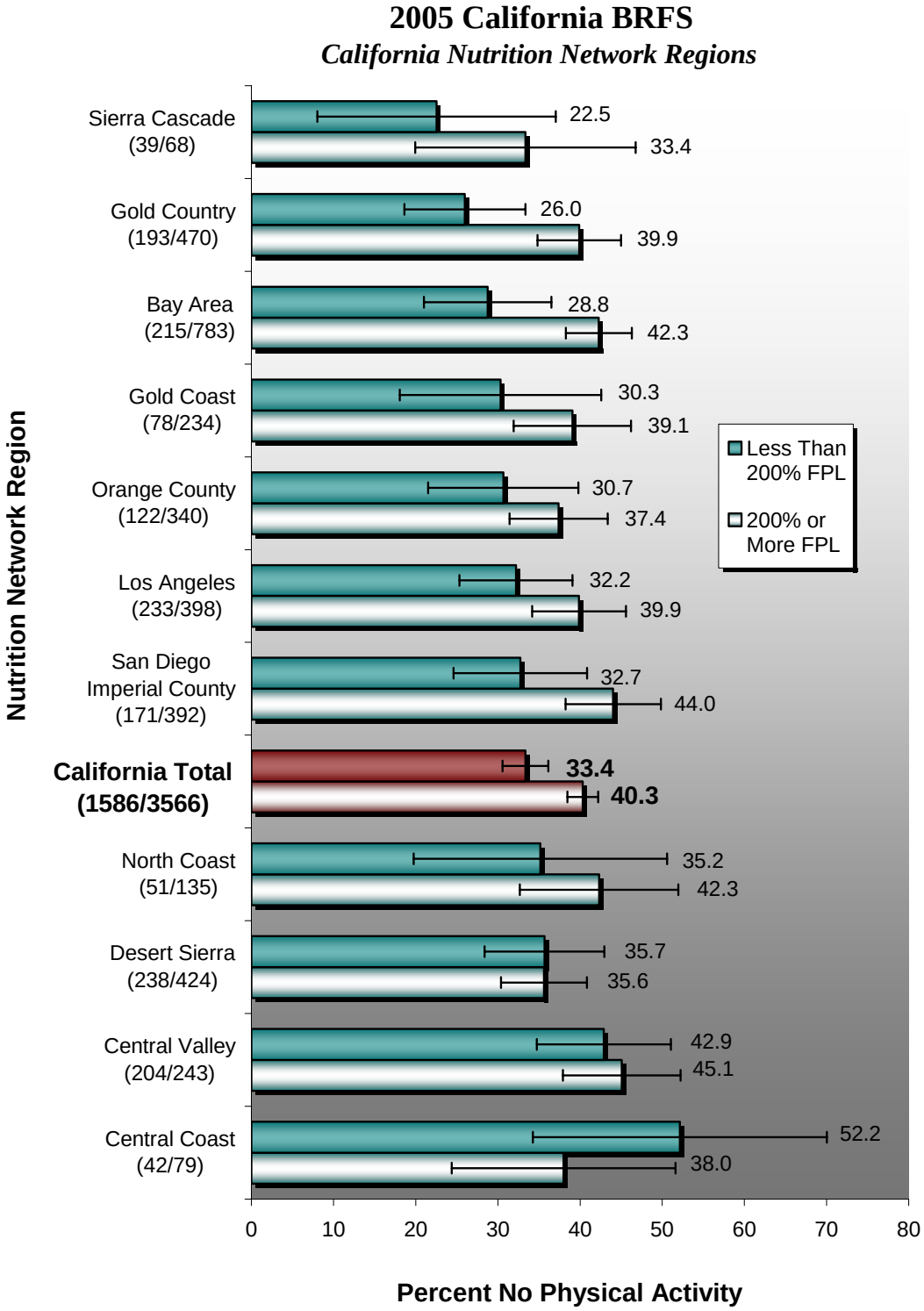


During the past MONTH, other than your regular job, did you participate in any PHYSICAL ACTIVITIES or EXERCISES such as running, calisthenics, golf, gardening or walking for exercise?

*A low answer is desirable for this question.

California Department of Health Services, Cancer Prevention and Nutrition Section, October 2006

Percent No Physical Activity*



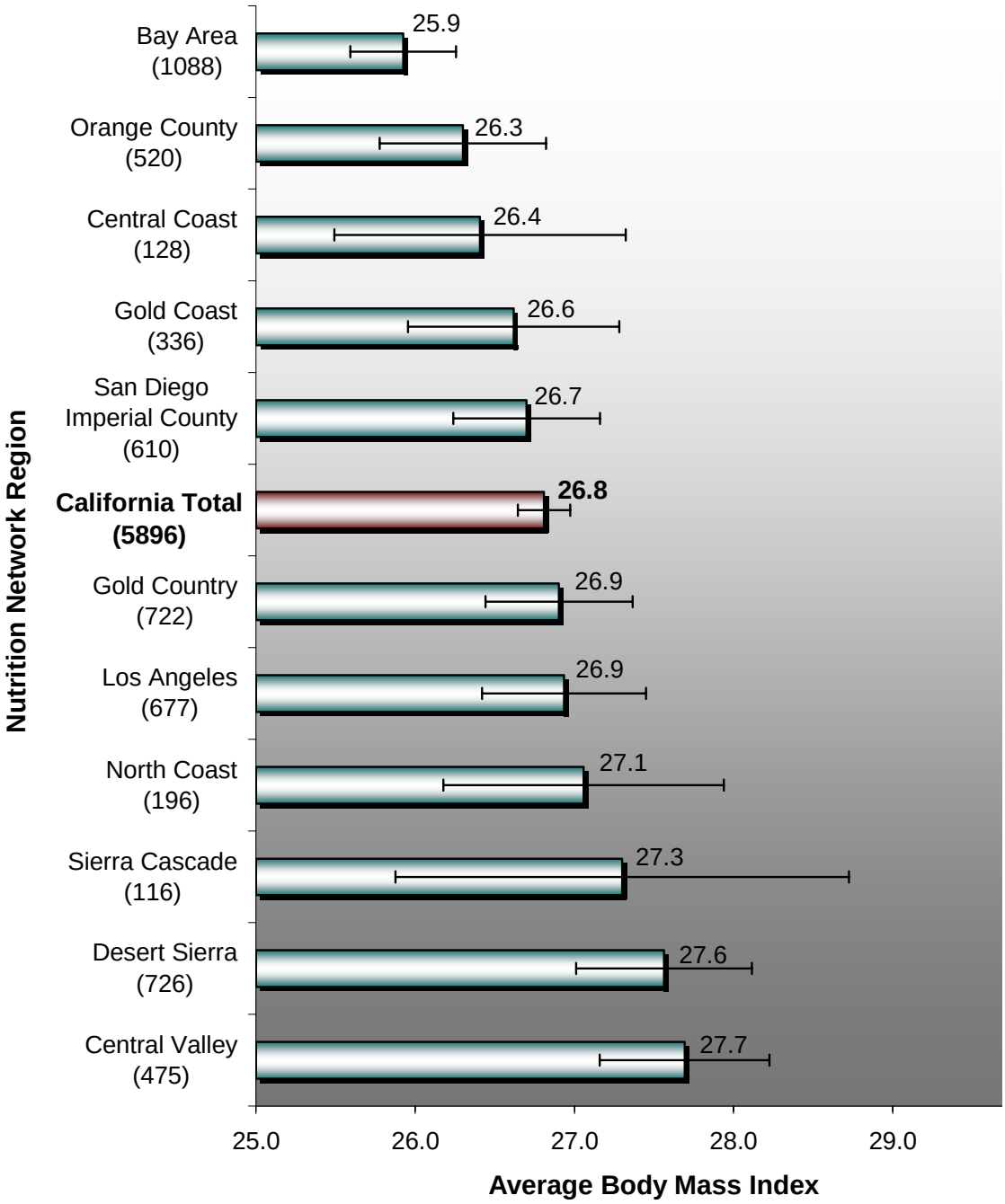
During the past MONTH, other than your regular job, did you participate in any PHYSICAL ACTIVITIES or EXERCISES such as running, calisthenics, golf, gardening or walking for exercise?

*A low answer is desirable for this question.

Average Body Mass Index

2005 California BRFS

California Nutrition Network Regions

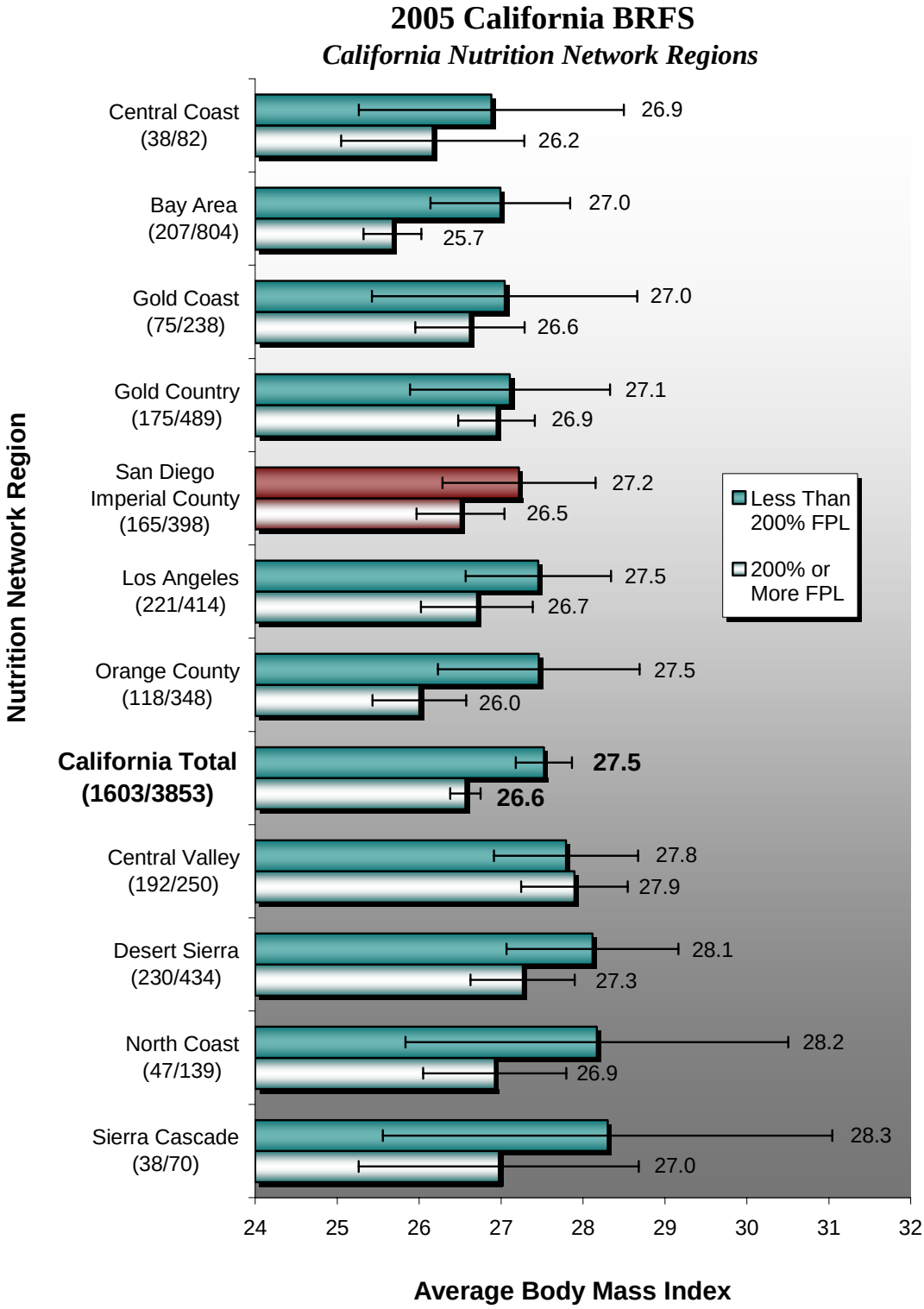


Body mass index (BMI) is calculated from the reported height and weight of the individual according to the following formula: BMI = weight in kg / [(height in m)^2]. The sample sizes for the regions are presented in parentheses.

Note that even in the best-rated region, the mean BMI is greater than the cutoff value for overweight.

California Department of Health Services, Cancer Prevention and Nutrition Section, October 2006

Average Body Mass Index



Body mass index (BMI) is calculated from the reported height and weight of the individual according to the following formula: BMI = weight in kg / [(height in m)^2].
The sample sizes for the regions are presented in parentheses.

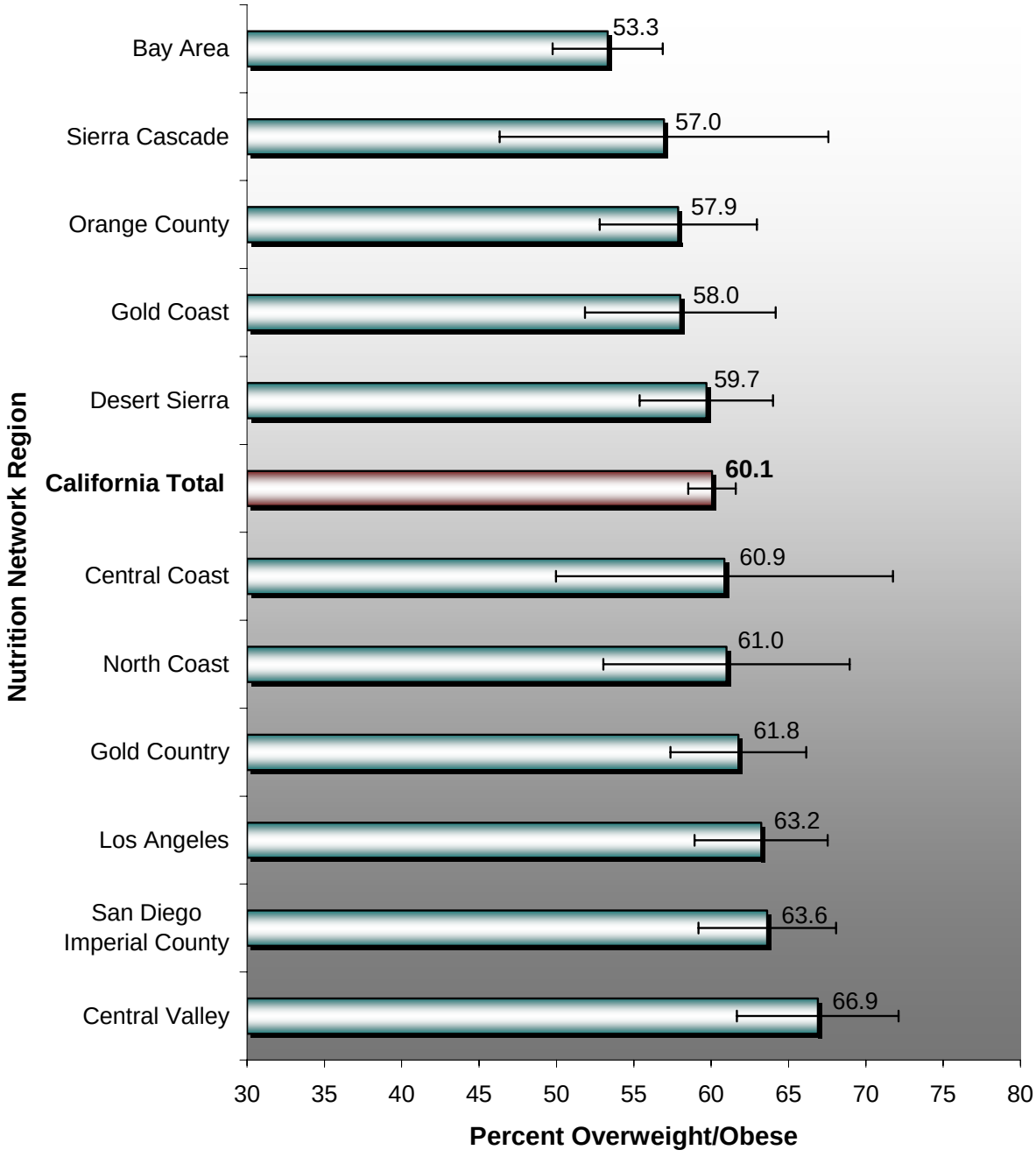
Note that even in the best-rated region, the mean BMI is greater than the cutoff value for overweight.

California Department of Health Services, Cancer Prevention and Nutrition Section, October 2006

Percent Overweight or Obese

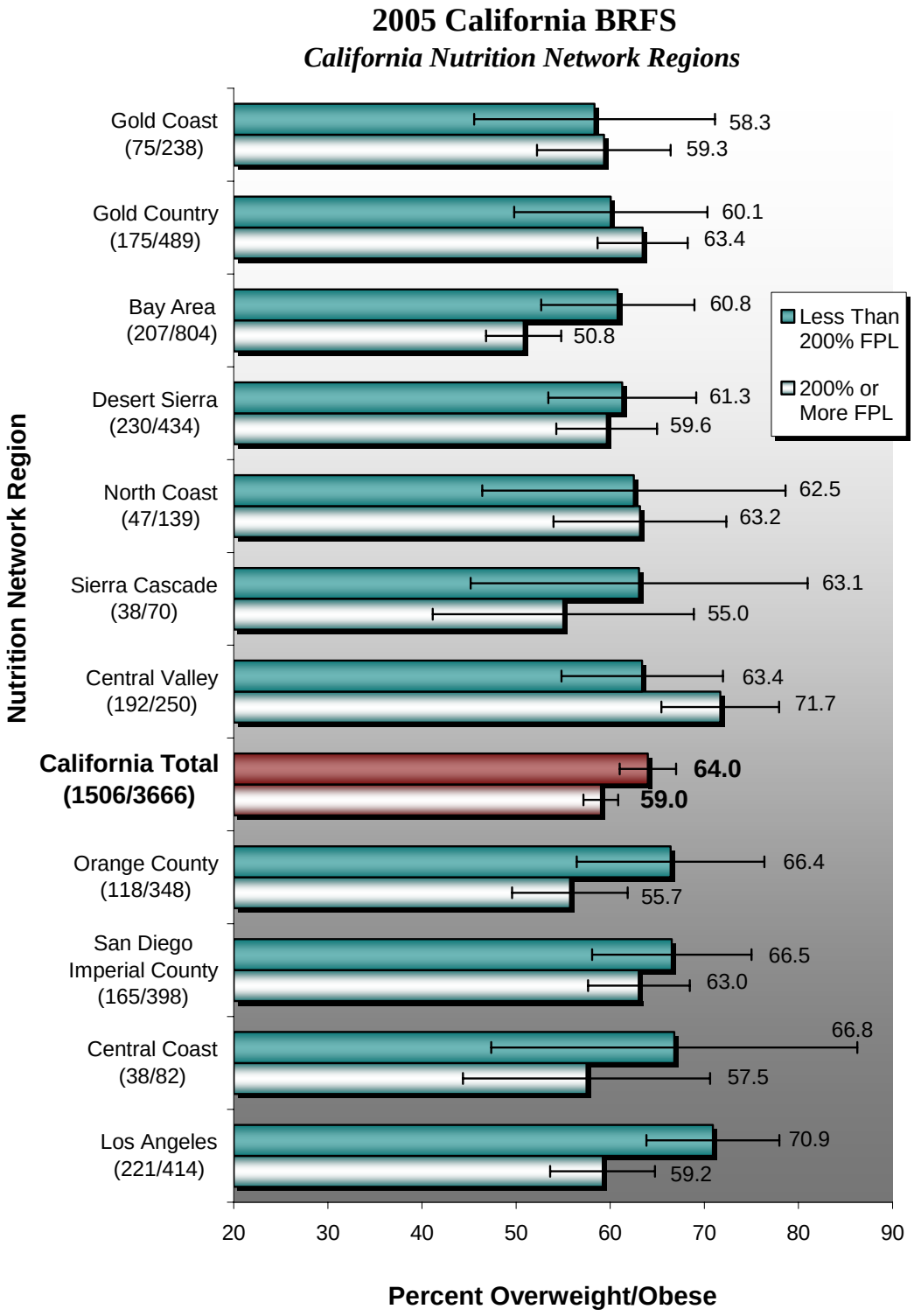
2005 California BRFS

California Nutrition Network Regions



Overweight or obese is defined as a BMI greater than or equal to 25.

Percent Overweight or Obese

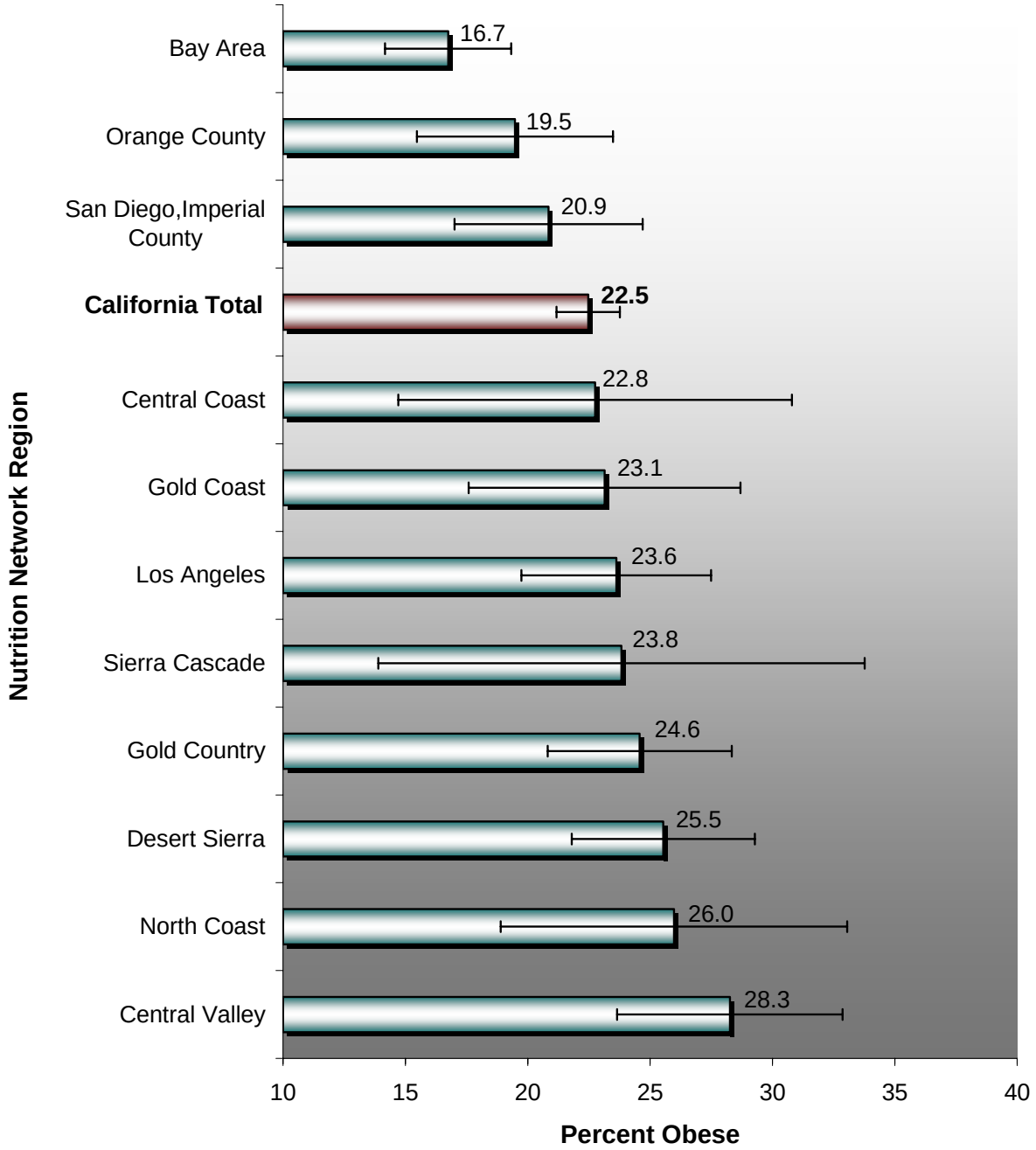


Overweight or obese is defined as a BMI greater than or equal to 25.

Percent Obese

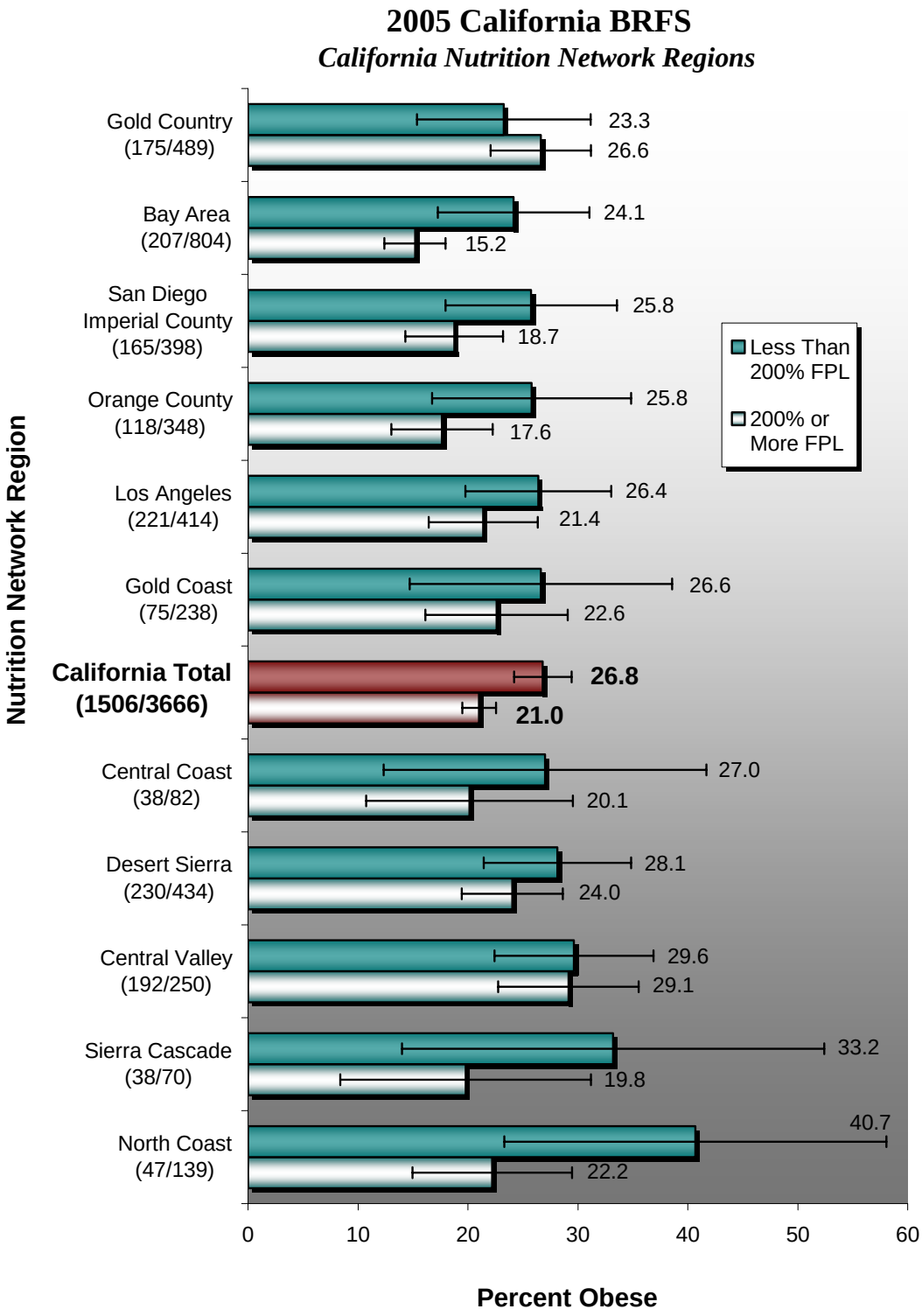
2005 California BRFS

California Nutrition Network Regions



Obese is a BMI greater than or equal to 30.

Percent Obese

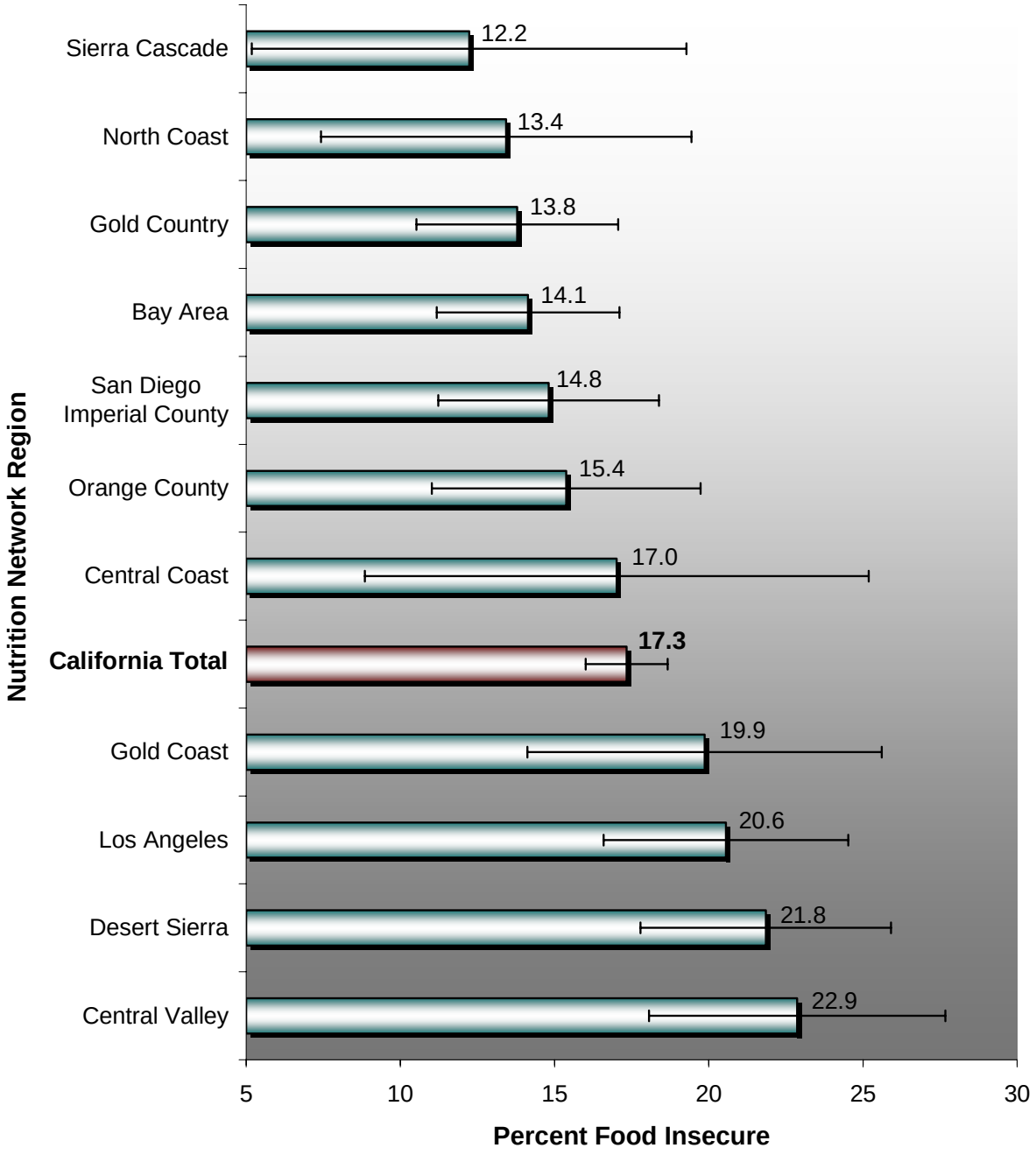


Obese is a BMI greater than or equal to 30.

Percent Food Insecure

2005 California BRFS

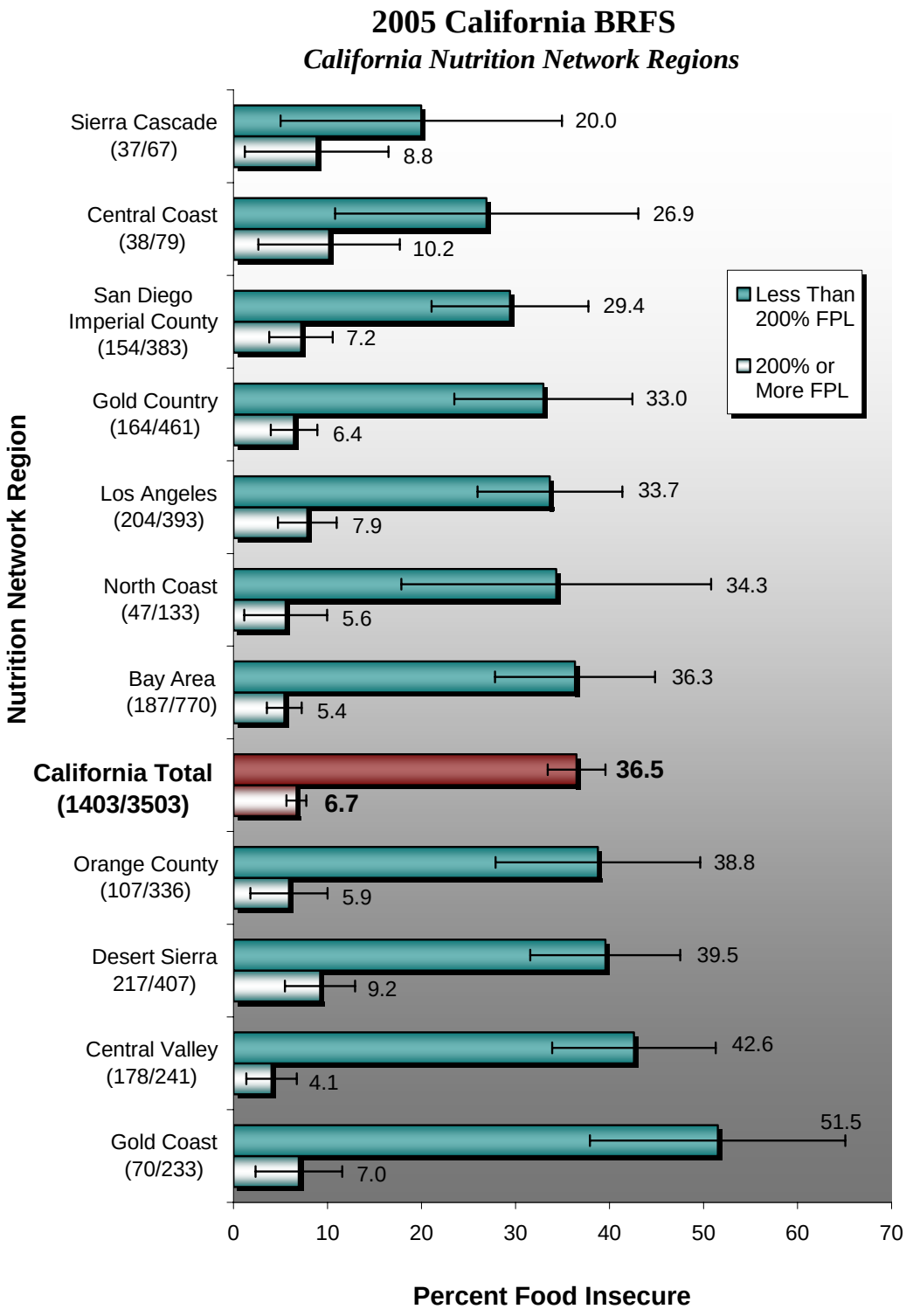
California Nutrition Network Regions



Food insecurity is not being able to afford or cutting back on meals.

*A low answer is desirable for this question.

Percent Food Insecure



Food insecurity is not being able to afford or cutting back on meals.

*A low answer is desirable for this question.

APPENDIX

Definitions of Variables

Fruit and Vegetable Consumption

In 2005 the California BRFS contained the BRFS module for assessing fruit and vegetable consumption. Participants are asked to specify how often they ate the specified food per day, week, month or year. Variables _JUICE94 (100% fruit juice), _FRUIT90, _SALAD (green salad), _POTATO (excluding fries), _CARROT, _VEG90 (all other vegetables) are converted such that all responses are expressed as times per day, without rounding of fractions. Responses of unknown or refused are set to missing. If any of the six responses were unknown or refused, _DIET (the sum of the variables above) was set to missing. Note that these questions assess the number of times the food is eaten per day, not the number of servings.

Body Mass Index

Body mass index (BMI) is calculated from the reported height and weight of the individual according to the following formula: BMI = weight in kg / [(height in m)^2]. "Overweight or obese" is defined as a BMI greater than or equal to 25. "Obese" alone is a BMI greater than or equal to 30.

Physical Activity

"No physical activity" is based on the question: **During the past MONTH, other than your regular job, did you participate in any PHYSICAL ACTIVITIES or EXERCISES such as running, calisthenics, golf, gardening or walking for exercise?**

Respondents who answered YES are coded 1. Respondents who answered NO are coded 0. Those who don't know or refuse are set to missing. To get the measure of those who did **not** participate in physical activity that was not job-related, the percent of respondents who answered "yes" are subtracted from 100% to produce the indicator of "No physical activity". Additional measures were based on the time and the number of days a week a typical amount was spent at the moderate or vigorous physical activity levels.

Food Insecurity

Food insecurity, not being able to afford or cutting back on meals, is ascertained from a sequence of six questions obtained from the short form of the Household Food Security Scale (Bickel, Gary, Mark Nord, Cristofer Price, William Hamilton, and John Cook: *Guide to Measuring Household Food Security, Revised 2000*. U.S. Department of Agriculture, Food and Nutrition Service, Alexandria VA. March, 2000). This short form scale provides a reasonably reliable substitute for the 18-item Household Food Security Scale from the United States Department of Agriculture.